David Chen

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EDUCATION

Yale University
New Haven, CT

B.S. Applied Mathematics, Computer Science & Economics — *August 2023 – May 2027*

- Relevant Coursework: Systems Programming and Computer Organization, Data Structures and Programming Techniques, Stochastic Processes (Audit), Probability Theory, Theory of Statistics, Ordinary and Partial Differential Equations, Introduction to Machine Learning, Computational Intelligence for Games, Game Theory, Object Oriented Programming, Linear Algebra, Multivariable Calculus
- Activities: Yale Net Impact Head of Client Recruitment, Yale Undergraduate Hedge Fund Association Quant Team Member, Yale Scholars of Finance, Yale Undergraduate Diversified Investments, Yale Christian Union

EXPERIENCE

Yale School of Medicine - Department of Therapeutic Radiology
New Haven, CT

Undergraduate Researcher — *January 2025 – Present*

- Designed and implemented an advanced DICOM processing pipeline to extract and analyze radiotherapy treatment plans, with applications in brachytherapy, under the mentorship of Professor Christopher Tien
- Authored the research work "Automated Channel Reconstruction For Efficient Brachytherapy Treatment Planning" to the 2025 Annual Conference of Brachytherapy

Collinear Learning, Inc.
New Haven, CT

Co-Founder — *November 2024 – Present*

- Developed and fine-tuned AI models for automated grading and personalized feedback, optimizing model performance through transfer learning on education-specific datasets
- Designed and built scalable backend infrastructure to support real-time grading and student analytics, leveraging FastAPI, PostgreSQL, and Docker.

Yale School of Engineering and Applied Science - YINS
New Haven, CT

Undergraduate Researcher — *January 2024 – Present*

- Contributed to machine learning research with Prof. Tassiulas and Dr. Palaiokrassas on complex network analysis of Decentralized Finance (DeFi), with applications in fraud and anomaly detection and network optimization
- Developing a decentralized application (dAPP) and a Retrieval Augmented Generation (RAG) chain pipeline for LLMs with the novel application of providing transparency and data privacy in the training of LLMs
- Engineered an advanced dynamic pricing framework that leverages real-time demand signals, adaptive quality assessments, automated file scoring mechanisms, and gas fee dynamics to drive optimal pricing strategies in decentralized ecosystems

Zenith Technologies
New York, NY

Founder and CEO — *May 2021 – Present*

- Founded a software-as-a-service platform and web development agency, providing software on a subscription basis
- Solely responsible for product development efforts for more than 50 online communities, overseeing the design, implementation, and successful deployment of new products and routine updates; decreased churn rate by over 50% through automated subscription management

SELECTED PROJECTS

Quantitative Trading Framework

- Engineering a comprehensive, modular trading framework that integrates multi-strategy implementations (momentum, factor, pairs, machine learning, and regime switching), and robust backtesting capabilities
- Implemented sophisticated risk management tools—including dynamic Value at Risk (VaR), Expected Shortfall (CVaR), and volatility forecasting using GARCH models—ensuring rigorous portfolio risk control.
- Optimized computational efficiency through parallel processing (using ThreadPoolExecutor) and efficient data management (with parquet storage), enabling rapid analysis and real-time signal generation for live trading.

Code Fjord - Online Educational Platform

- Developed an intuitive educational platform with interactive lessons and instantaneous feedback; provided an in-browser coding environment using Monaco Editor
- Integrated and maintained a Docker code execution engine, with security measures against malicious code, fork bombing, and forbidding outgoing network requests; supported languages such as JavaScript, Java, and Python

ADDITIONAL INFORMATION

Programming Skills: Node.JS, React, Python, PyTorch, Golang, C, Java, HTML, CSS, SQL, R